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EXAMINER
KUBELIK, ANNE R

ART UNIT	PAPER NUMBER
1638	18

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/554,941	Applicant(s) ATKINSON ET AL.	
	Examiner Anne R. Kubelik	Art Unit 1638	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *9 October 2002 and 18 November 2002* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,2,4-11,13,14,16 and 18-24* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2,4-11,13,14,16 and 18-24* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *13* .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

1. The amendments to the specification, with the exception of the amendment to lines 1-4 of pg 17, the cancellation of claims 3, 12, 15 and 17, the amendment of claims 1-2, 4-8, 13-14 and 16, and the addition of claims 18-23, have been entered as requested in Paper No. 15, filed 9 October 2002. The amendment to the specification and claims 1-2, 4-5, 13, 18 and 21, and the addition of new claim 24, have been entered as requested in Paper No. 17, filed 18 November 2002. Claims 1-2, 4-11, 13-14, 16 and 18-24 are pending.

2. Newly submitted claim 23 is directed to an invention that is independent or distinct from the invention originally claimed for the following reasons:

The originally claimed invention I and the newly submitted invention are related as combination and subcombination. Inventions in this relationship are distinct if it can be shown that (1) the combination as claimed does not require the particulars of the subcombination as claimed for patentability, and (2) that the subcombination has utility by itself or in other combinations (MPEP § 806.05(c)). In the instant case, the combinations as claimed do not require the particulars of the subcombinations as claimed because the presence of multiple combinations serves as evidence that the combinations do not rely solely upon any single subcombination as claimed for their own patentability. The subcombinations have separate utility in any of the different combinations.

Since Applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claim 23 is withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

3. It is noted that in parts of the specification, blank lines do not separate paragraphs as they are do other parts of the specification (see pg 8 and 11-12, among others). As the paragraphs do not start with indentations, the only way to distinguish the start of a paragraph is by the short line ending the paragraph prior to it. At printing, this could cause problems, and these paragraphs may be printed as one long paragraph. If Applicant wishes to avoid this, it is suggested that a substitute specification be submitted.

A substitute specification filed under 37 CFR 1.125(a) must only contain subject matter from the original specification and any previously entered amendment under 37 CFR 1.121. If the substitute specification contains additional subject matter not of record, the substitute specification must be filed under 37 CFR 1.125(b) and must be accompanied by: 1) a statement that the substitute specification contains no new matter; 2) a marked-up copy showing the amendments to be made via the substitute specification relative to the specification at the time the substitute specification is filed; and 3) a request for its entry.

4. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Response to Amendment

5. The rejection of claim 17 under 35 U.S.C. 101 because the claimed recitation of a use, without setting forth any steps involved in the process, results in an improper definition of a process is obviated by its cancellation.

6. The rejection of claims 13-14 and 16 under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter is WITHDRAWN in light of amendment to claims 13 and 16.

7. The rejection of claim 13 under 35 U.S.C. 102(b) as being anticipated by Warren et al (WO 96/10083) is WITHDRAWN in light of amendments to the claim to indicate that one of the anti-pathogenic domains has protease inhibitor activity.

8. The rejection of claim 13 under 35 U.S.C. 102(b) as being anticipated by Mapelli et al (1992, EP 497,366) is WITHDRAWN in light of amendments to the claim to indicate that one of the anti-pathogenic domains has protease inhibitor activity.

Claim Rejections - 35 USC § 112

9. Claims 1-2, 411, 13-14, 16, 21-22 and 24 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter that was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The rejection is repeated for the reasons of record as set forth in the Office action mailed 10 April 2002, as applied to claims 1-14 and 16-17. Applicant's arguments filed 9 October 2002 have been fully considered but they are not persuasive.

Applicant urges that the specification adequately describes the claimed invention. Applicant urges that the specification at pg 6, lines 15-22 list other anti-pathogenic proteins or protein domains that can be used in the instant invention, and also cites US Patents 5,436,392, 5,461,032 and 5,320,831. Applicant urges that the Written Description Guidelines states that

there is no rule limiting DNA claims to only the disclosed sequence. Additionally, Applicant argues that the sequences of the DNAs are known (response pg 8-10).

This is not found persuasive because the linker peptides, other than SEQ ID NOs:1, 2 and 11, are not described. Additionally, while pg 6, lines 15-22, of the specification list preferred proteins and protein domains, they do not describe the structural features of anti-pathogenic proteins or proteins domains, and do not describe the features that distinguish proteins and protein domains that are anti-pathogenic from those that are not.

10. Claims 1-2, 4-11, 13-14, 16, 21-22 and 24 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for a method of improving the nematode resistance of a plant by transformation with a DNA construct encoding the protease inhibitors Oc-IΔD86 and CpTI joined by a linker peptide of SEQ ID NOs:1, 2 or 11, does not reasonably provide enablement for a method of improving the resistance of a plant to any pathogen by transformation with any DNA construct encoding any two anti-pathogenic proteins joined by a linker peptide of any size. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention commensurate in scope with these claims. The rejection is repeated for the reasons of record as set forth in the Office action mailed 10 April 2002, as applied to claims 1-14 and 16-17. Applicant's arguments filed 9 October 2002 have been fully considered but they are not persuasive.

The claims are broadly drawn to a method of improving the resistance of a plant to any pathogen by transformation with a DNA construct encoding two anti-pathogenic proteins joined by any linker peptide, DNA constructs used in the method and plants so transformed.

The instant specification, however, only provides guidance for DNA constructs encoding the protease inhibitors Oc-IΔD86 and CpTI joined by linker peptides of SEQ ID NOs:1, 2 and 11 (example 1), DNA constructs encoding the protease inhibitors Oc-I or CpTI (example 2), transformation of the constructs into plants (example 3) and *E. coli* (example 4), and purification of the proteins from *E. coli* and *Arabidopsis*, Western blots of proteins from nematodes feeding off of the transgenic plants and to proteins from the transgenic plants themselves, and production of antibodies to Oc-IΔD86 and CpTI (example 5).

The instant specification fails to provide guidance for use of DNA constructs encoding anti-pathogenic proteins of any size or linkers of any size. The specification fails to provide guidance for improving the resistance of a plant to any pathogen.

Not all proteins are small enough to be ingested by nematodes. Urwin et al (1997, Plant J. 12:455-461) teach that green fluorescent protein, which is approximately 28kDa, is too large to be ingested by *Heterodera schachtii* (pg 459, left column, paragraph 3). Thus, DNA constructs encoding fusion proteins that are too large will not be effective in the instant method.

Protease inhibitors, when expressed in a plant, do not provide resistance to all pathogens, including bacteria (Gleddie et al, 2000, "The control of plant pathogens with protease inhibitors: A realistic approach?", *In:* Recombinant protease inhibitors in plants, Michaud, ed., pg 53-64; see pg 59, left column, paragraph 1). Gleddie et al also teach that any protease inhibitor must be targeted to the appropriate cellular location and this location differs for different pathogens (pg 60, left column, paragraph 2). The instant specification fails to teach that Oc-IΔD86 and CpTI provide resistance to any pathogen other than nematodes and fails to teach the appropriate cellular targeting of the fusion protein.

In the absence of appropriate guidance, undue trial and error experimentation would be required to screen though the myriad of DNAs that encode proteins with antipathogenic activity, and plants transformed therewith, to identify those that confer increased pathogens resistance against the multitude of different pathogens as claimed.

Given the claim breath, unpredictability in the art, and lack of guidance in the specification as discussed above, the instant invention is not enabled throughout the full scope of the claims.

Applicant urges that the presence of inoperative embodiments does not render a claim nonenabled and urges that no evidence was presented that showed that the efforts required to the skilled artisan to determine which embodiments were conceived were more than normally required. Applicant urges that Unwin et al shows that one of skill in the art would have been aware that size of the molecule fed to nematodes is important and that *M. cognita* can ingest proteins of at least 28kDa, while *H. schachtii* could not. Applicant urges that the present invention is not limited to protease inhibitors, and that one of skill in the art would know to employ particular anti-pathogenic proteins to regulate a particular pathogen, as stated by Gleddie et al. Applicant also urges that Gleddie et al merely speculates that protease inhibitors should be translocated to the appropriate cellular location, and discussed only protease inhibitors, not mentioning other types of anti-pathogenic proteins or protein domains. Applicant urges that some experimentation is permitted and urges that it has not been established that preparing other fusion proteins would be undue experimentation. Applicant urges that the specification provides sufficient guidance regarding the generation of DNA expression cassettes, and those examples, along with the knowledge of one of skill in the art would have enabled one of skill in the art to

made and used the invention. Thus, Applicant urges that screening variants would be routine (response pg 10-14).

This is not found persuasive because the specification fails to provide guidance for the use of linkers of any size or sequence in the constructs. It also fails to provide guidance for with anti-pathogenic proteins or proteins domains would provide resistance or tolerance to nematodes. Additionally, as Unwin et al shows that nematodes of different species have different size limits in the proteins they can digest, undue experimentation would be required to screen through the multitude of possible constructs comprising nucleic acid encoding anti-pathogenic proteins and protein domains and linkers to find those that improve nematode resistance, given the lack of guidance provided for identification or construction of proteins or protein domains that are pathogenic to nematodes.

11. Claims 1-2, 4-11, 13-14, 16, 18-22 and 24 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter that Applicant regards as the invention. Dependent claims are included in all rejections. The rejection is repeated for the reasons of record as set forth in the Office action mailed 10 April 2002, as applied to claims 1-14 and 16-17. Applicant's arguments filed 9 October 2002 have been fully considered but they are not persuasive.

Claims 1-2, 4-11 and 18-20 are indefinite because they lack agreement between the preamble of the methods and the positive method steps. Methods must be circular; the final step must generate the item the method is intended to produce. For example, the method of

improving pathogen resistance in a plant in claim 1 ends in integrating a gene into a plant, when it should end in the production a plant with improved pathogen resistance.

Applicant urges that unless a method claim is a product-by-process claim, there is no requirement that the method must be circular and that the claimed method does not require that a product be produced (response pg 14).

This is not found persuasive. A product must be produced to improve nematode resistance in a plant; the product is a plant with nematode resistance. It is suggested that the claim be amended to insert before the period --thus producing a plant with improved nematode resistance or tolerance--.

Applicant urges that the other claims have been amended or canceled (response pg 14-15). This is not found persuasive because the following rejection remains:

Claims 1 and 13 are indefinite because it is still not clear if "with anti-pathogenic activity" in parts (a) and (c) is intended to modify both protein" and "protein domain" or if it is intended to modify only "protein domain". If it is intended to modify both, it is suggested that the claims be amended to replace "with" with --wherein said protein or protein domain has--.

The following rejection is new, due to amendment of the claims:

Claims 1-2, 4-11 and 18-20 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential steps, such omission amounting to a gap between the steps. See MPEP § 2172.01. The method is one of improving nematode resistance in a descendent plant. The only step is one of transforming a parent plant. The omitted steps are those involved in generating descendent plants.

Claim Rejections - 35 USC § 102

12. Claims 1-2, 7, 13-14 and 16 are rejected under 35 U.S.C. 102(b) as being anticipated by Anderson et al (WO 94/13810). The rejection is repeated for the reasons of record as set forth in the Office action mailed 10 April 2002, as applied to claims 1-3, 7, 12-14 and 16-17. Applicant's arguments filed 9 October 2002 have been fully considered but they are not persuasive.

Applicant urges that Anderson et al do not teach protein domains joined but linkers by six protein domains joined to each other (response pg 16-17).

This is not found persuasive because the domains themselves act as linkers, *e.g.*, domain 2 acts as a linker between domains 1 and 3.

Anderson et al teach a nucleic acid encoding a type II serine protease inhibitor from *Nicotiana alata*, which contains 6 reactive domains; these domains are joined by linkers (Fig. 1 and pg 26-27). This protease inhibitor is proteolytically cleaved in plant tissues (pg 29 and 32-33) and inhibits casein hydrolysis by crude gut extracts of various insects (Table 3). Anderson et al also teach a method of using this nucleic acid to increase resistance of a plant to insect or other pathogen infestation and plants so transformed (claims 25-28).

13. Claims 1-2, 7, 13-14 and 16 are rejected under 35 U.S.C. 102(e) as being anticipated by Anderson et al (US Patent 6,031,087, 102(e) date September, 1995). The rejection is repeated for the reasons of record as set forth in the Office action mailed 10 April 2002, as applied to claims 1-3, 7, 12-14 and 16-17. Applicant's arguments filed 9 October 2002 have been fully considered but they are not persuasive.

Applicant urges that Anderson et al do not teach protein domains joined by linkers but six protein domains joined to each other (response pg 17-18).

This is not found persuasive because the domains themselves act as linkers, *e.g.*, domain 2 acts as a linker between domains 1 and 3.

Anderson et al teach a nucleic acid encoding a type II serine protease inhibitor from *Nicotiana alata*, which contains 6 reactive domains; these domains are joined by linkers (Fig. 1 and column 17, lines 12-39). This protease inhibitor is proteolytically cleaved in plant tissues (pg column 18, line 56, to column 19, line 17; column 20, lines 1-43) and inhibits casein hydrolysis by crude gut extracts of various insects (Table 3). Anderson et al also teach a method of using this nucleic acid to increase resistance of a plant to insect or other pathogen infestation (claim 7).

14. Claims 13 and 21 are rejected under 35 U.S.C. 102(b) as being anticipated by Atkinson et al (WO 96/16173). The rejection is repeated for the reasons of record as set forth in the Office action mailed 10 April 2002. Applicant's arguments filed 9 October 2002 have been fully considered but they are not persuasive.

Applicant urges that Atkinson et al does not teach a DNA molecule encoding a fusion protein comprising a linker peptide (response pg 18).

This is not found persuasive because the hybrid constructs produced by Atkinson et al consist of different fragments of different lengths of cystatin and oryzacystatin are joined (see Table 3). The constructs thus encode anti-pathogenic domains joined by what are effectively linker domains.

Atkinson et al teach DNA constructs encoding the anti-pathogenic protease inhibitors chicken egg white cystatin linked to oryzacystatin (Oc-I) joined by various linker peptides (pg 22-24).

Claim Rejections - 35 USC § 103

15. Claims 1-2, 4-5, 7-8, 13-14, 16 and 21-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Atkinson et al (*supra*) in view of Lilley et al (1996, Parasitology 113:415-424). The rejection is repeated for the reasons of record as set forth in the Office action mailed 10 April 2002, as applied to claims 1-5, 7-8, 12-13 and 16-17. Applicant's arguments filed 9 October 2002 have been fully considered but they are not persuasive.

Applicant urges that Atkinson et al do not teach a DNA molecule encoding a fusion protein comprising a linker peptide and fails to teach or suggest a plant expressing such a DNA molecule or methods of using it to improve nematode resistance in a plant. Applicant urges that Lilley et al do not remedy those deficiencies (response pg 19).

This is not found persuasive because the hybrid constructs produced by Atkinson et al consist of different fragments of different lengths of cystatin and oryzacystatin are joined (see Table 3). The constructs thus encode anti-pathogenic domains joined by what are effectively linker domains.

The claims are drawn to a method of improving pathogen resistance or tolerance in plants by transformation with a DNA molecule that encodes a fusion protein comprising two anti-pathogenic proteins or domains joined by a linker peptide, wherein one of the antipathogenic proteins is cowpea trypsin inhibitor (CpTI) or Oc-IΔD86, DNA constructs used in that method and plants so transformed.

The teachings of Atkinson et al are discussed *supra*. Some of the linker peptides would be cleaved by a plant and some would not. Atkinson et al also teach a nucleic acid encoding a

modified version of oryzacystatin, Oc-IΔD86 (paragraph spanning pg 16-17) and a method of using it to increase resistance of tomato roots to nematodes (pg 20-21). Atkinson et al also disclose plants transformed with the DNA fusion constructs and DNA fusion constructs encoding Oc-IΔD86 and another protein (claims 47-48). Atkinson et al do not teach constructs in which CpTI is one of the protease inhibitors.

Lilley et al teach the genes for Oc-IΔD86 and CpTI (pg 416, right column, paragraph 3) and the effectiveness of the proteins in inhibiting cyst-nematode proteases (pg 417-420).

At the time the invention was made, it would have been obvious to one of ordinary skill in the art to modify the method of using DNA fusion constructs encoding anti-pathogenic protease inhibitors joined by various linker peptides to increase resistance of plant roots to nematodes as taught by Atkinson et al, to use the CpTI gene described in Lilley et al in the constructs. One of ordinary skill in the art would have been motivated to do so because Lilley et al state that the cleavage of certain protease substrates by nematode gut extracts can only be inhibited by a combination of both Oc-IΔD86 and CpTI (pg 422, left column, paragraph 2) and suggests expressing both in a plant (pg 423, left column, paragraph 1).

16. Claims 1-2, 4-8, 13-14, 16 and 21-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Atkinson et al in view of Hepher et al (1992, EP 502,730) and Conkling et al (US Patent 5,837,876, filed July, 1995). The rejection is repeated for the reasons of record as set forth in the Office action mailed 10 April 2002, as applied to claims 1-8, 12-13 and 16-17. Applicant's arguments filed 9 October 2002 have been fully considered but they are not persuasive.

Applicant urges that Atkinson et al do not teach a DNA molecule encoding a fusion protein comprising a linker peptide and fails to teach or suggest a plant expressing such a DNA molecule or methods of using it to improve nematode resistance in a plant. Applicant urges that neither Hepher et al nor Conkling et al remedy those deficiencies (response pg 20).

This is not found persuasive because the hybrid constructs produced by Atkinson et al consist of different fragments of different lengths of cystatin and oryzacystatin are joined (see Table 3). The constructs thus encode anti-pathogenic domains joined by what are effectively linker domains.

The claims are drawn to a method of improving pathogen resistance or tolerance in plants by transformation with a DNA molecule that encodes a fusion protein comprising two anti-pathogenic proteins or domains joined by a linker peptide, wherein one of the antipathogenic proteins is cowpea trypsin inhibitor (CpTI) or Oc-IΔD86, and wherein the constructs are expressed from root-specific promoters, DNA constructs used in that method and plants so transformed.

The teachings of Atkinson et al are discussed *supra*. Atkinson et al do not teach constructs in which CpTI is one of the protease inhibitors, nor do they teach expression of the constructs behind root-specific promoters.

Hepher et al teach a method of producing nematode resistant potato plants by transformation with a DNA construct encoding CpTI (example 1-2) and isolation of the gene for oryzastatin (example 6).

Conkling et al teach a root specific promoter from tobacco (SEQ ID NO:1).

At the time the invention was made, it would have been obvious to one of ordinary skill in the art to modify the method of using DNA fusion constructs encoding anti-pathogenic protease inhibitors, including Oc-IΔD86, joined by various linker peptides to increase resistance of plant roots to nematodes as taught by Atkinson et al, to use the CpTI gene in those constructs as described in Hepher et al and to use the root-specific promoter taught by Conkling et al. One of ordinary skill in the art would have been motivated to do so because of the suggestions of Hepher et al to express the constructs behind root-specific promoters (pg 5, lines 40-45) and of Conkling et al to use the promoter to express gene for resistance to below-ground organisms like nematode (column 5, lines 21-30, and column 6, lines 39-67). Use of the CpTi gene in the constructs of Atkinson et al would be an obvious refinement of experimental parameters.

17. Claims 9-11, 18-20 and 24 are free of the prior art, given the failure of the prior art to teach or suggest a method of improving pathogen resistance or tolerance in plants by transformation with a DNA molecule that encodes a fusion protein comprising two anti-pathogenic proteins or domains joined by a linker peptide of SEQ ID NO:1, 2 or 11.

Allowable Subject Matter

18. Claims 18-20 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action.

Conclusion

19. No claim is allowed.

20. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anne R. Kubelik, whose telephone number is (703) 308-5059. The examiner can normally be reached Monday through Friday, 8:30 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amy Nelson, can be reached at (703) 306-3218. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9306 for regular communications and (703) 872-9307 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the patent analyst, Kimberly Davis, at (703) 305-3015.

Anne R. Kubelik, Ph.D.
January 21, 2003

AMY J. NELSON, PH.D
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